

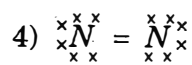
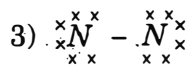
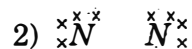
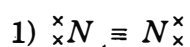
Consortium of Medical Engineering and Dental Colleges of Karnataka (COMEDK)

Undergraduate Entrance Test(UGET)

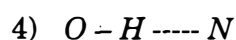
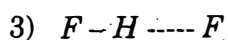
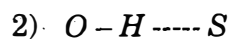
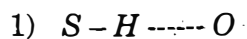
Chemistry Sample Paper-3

- Which of the following is not an ore of magnesium ?
 - 1) Carnallite
 - 2) Dolomite
 - 3) Calamine
 - 4) Sea water
- The atomic numbers of *Ni* and *Cu* are 28 and 29 respectively. The electron configuration $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10}$ represents
 - 1) Cu^+
 - 2) Cu^{2+}
 - 3) Ni^{2+}
 - 4) *Ni*
- In the following, the element with the highest ionisation energy is
 - 1) $[Ne]3s^2 3p^1$
 - 2) $[Ne]3s^2 3p^3$
 - 3) $[Ne]3s^2 3p^2$
 - 4) $[Ne]3s^2 3p^4$
- In the conversion of Br_2 to BrO_3^- , the oxidation number of *Br* changes from
 - 1) zero to + 5
 - 2) + 1 to + 5
 - 3) zero to - 3
 - 4) + 2 to + 5
- Among the alkali metals cesium is the most reactive because
 - 1) its incomplete shell is nearest to the nucleus
 - 2) it has a single electron in the valence shell
 - 3) it is the heaviest alkali metal
 - 4) the outermost electron is more loosely bound than the outermost electron of the other alkali metals.

6. Which of the following represents the Lewis structure of N_2 molecule ?



7. Hydrogen bond is strongest in



8. The decomposition of a certain mass of $CaCO_3$ gave 11.2 dm^3 of CO_2 gas at STP. The mass of KOH required to completely neutralise the gas is

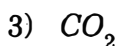
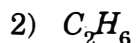
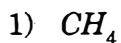
1) 56 g

2) 28 g

3) 42 g

4) 20 g

9. The density of a gas is 1.964 g dm^{-3} at 273 k and 76 cm Hg. The gas is



10. 0.06 mole of KNO_3 solid is added to 100 cm^3 of water at 298 k. The enthalpy of $KNO_{3(aq)}$ solution is 35.8 kJmol^{-1} . After the solute is dissolved the temperature of the solution will be

1) 293 k

2) 298 k

3) 301 k

4) 304 k

16. ΔG° Vs T plot in the Ellingham's diagram slopes downwards for the reaction
- 1) $Mg + \frac{1}{2}O_2 \rightarrow MgO$
 - 2) $2Ag + \frac{1}{2}O_2 \rightarrow Ag_2O$
 - 3) $C + \frac{1}{2}O_2 \rightarrow CO$
 - 4) $CO + \frac{1}{2}O_2 \rightarrow CO_2$
17. Which of the following reaction taking place in the Blast furnace is endothermic?
- 1) $CaCO_3 \rightarrow CaO + CO_2$
 - 2) $2C + O_2 \rightarrow 2CO$
 - 3) $C + O_2 \rightarrow CO_2$
 - 4) $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$
18. Liquor ammonia bottles are opened only after cooling. This is because
- 1) it is a mild explosive
 - 2) it is a corrosive liquid
 - 3) it is a lachrymatory
 - 4) it generates high vapour pressure
19. The formation of $O_2^+ [Pt F_6]^-$ is the basis for the formation of Xenon fluorides. This is because
- 1) O_2 and Xe have comparable sizes
 - 2) both O_2 and Xe are gases
 - 3) O_2 and Xe have comparable ionisation energies
 - 4) O_2 and Xe have comparable electronegativities
20. The highest magnetic moment is shown by the transition metal ion with the configuration
- 1) $3d^2$
 - 2) $3d^5$
 - 3) $3d^7$
 - 4) $3d^9$

21. A transition metal ion exists in its highest oxidation state. It is expected to behave as

- 1) a chelating agent
- 2) a central metal in a coordination compound
- 3) an oxidising agent
- 4) a reducing agent

22. In which of the following complex ion, the central metal ion is in a state of sp^3d^2 hybridisation?

- 1) $[CoF_6]^{3-}$
- 2) $[Co(NH_3)_6]^{3+}$
- 3) $[Fe(CN)_6]^{3-}$
- 4) $[Cr(NH_3)_6]^{3+}$

23. Which of the following can participate in linkage isomerism?

- 1) NO_2^-
- 2) $H_2NCH_2CH_2NH_2$
- 3) H_2O
- 4) $:NH_3$

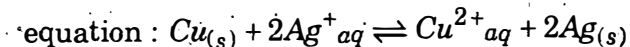
24. Which of the following has the highest bond order?

- 1) N_2
- 2) O_2
- 3) He_2
- 4) H_2

25. Which of the following is diamagnetic?

- 1) H_2^+
- 2) O_2
- 3) Li_2
- 4) He_2^+

31. Which one of the following condition will increase the voltage of the cell represented by the



- 1) increase in the dimensions of *Cu* electrode
- 2) increase in the dimensions of *Ag* electrode
- 3) increase in the concentration of Cu^{2+} ions
- 4) increase in the concentration of Ag^+ ions

32. The pH of 10^{-8} M *HCl* solution is

- 1) 8
- 2) more than 8
- 3) between 6 and 7
- 4) slightly more than 7

33. The mass of glucose that should be dissolved in 50 g of water in order to produce the same lowering of vapour pressure as is produced by dissolving 1 g of urea in the same quantity of water is

- 1) 1 g
- 2) 3 g
- 3) 6 g
- 4) 18 g

34. Osmotic pressure observed when benzoic acid is dissolved in benzene is less than that expected from theoretical considerations. This is because

- 1) benzoic acid is an organic solute
- 2) benzoic acid has higher molar mass than benzene
- 3) benzoic acid gets associated in benzene
- 4) benzoic acid gets dissociated in benzene

35. For a reaction to be spontaneous at all temperatures

- 1) ΔG and ΔH should be negative
- 2) ΔG and ΔH should be positive
- 3) $\Delta G = \Delta S = 0$
- 4) $\Delta H < \Delta G$

36. Which of the following electrolyte will have maximum flocculation value for $Fe(OH)_3$ sol. ?
- 1) $NaCl$
 - 2) Na_2S
 - 3) $(NH_4)_3PO_4$
 - 4) K_2SO_4
37. For a reversible reaction : $X_{(g)} + 3Y_{(g)} \rightleftharpoons 2Z_{(g)}$
 $\Delta H = -40 \text{ kJ}$ the standard entropies of X, Y and Z are 60, 40 and 50 $\text{JK}^{-1} \text{mol}^{-1}$, respectively.
The temperature at which the above reaction attains equilibrium is about
- 1) 400 K
 - 2) 500 K
 - 3) 273 K
 - 4) 373 K
38. The radii of Na^+ and Cl^- ions are 95 pm and 181 pm respectively. The edge length of $NaCl$ unit cell is
- 1) 276 pm
 - 2) 138 pm
 - 3) 552 pm
 - 4) 415 pm
39. Inductive effect involves
- 1) displacement of σ electrons
 - 2) delocalisation of π electrons
 - 3) delocalisation of σ electrons
 - 4) displacement of π electrons
40. The basicity of aniline is less than that of cyclohexylamine. This is due to
- 1) + R effect of $-NH_2$ group
 - 2) - I effect of $-NH_2$ group
 - 3) - R effect of $-NH_2$ group
 - 4) hyperconjugation effect

46. Which of the following compound would not evolve CO_2 when treated with $NaHCO_3$ solution ?
- 1) salicylic acid
 - 2) phenol
 - 3) benzoic acid
 - 4) 4-nitro benzoic acid
47. By heating phenol with chloroform in alkali, it is converted into
- 1) salicylic acid
 - 2) salicylaldehyde
 - 3) anisole
 - 4) phenyl benzoate
48. When a mixture of calcium benzoate and calcium acetate is dry distilled, the resulting compound is
- 1) acetophenone
 - 2) benzaldehyde
 - 3) benzophenone
 - 4) acetaldehyde
49. Which of the following does not give benzoic acid on hydrolysis ?
- 1) phenyl cyanide
 - 2) benzoyl chloride
 - 3) benzyl chloride
 - 4) methyl benzoate
50. Which of the following would undergo Hoffmann reaction to give a primary amine ?

- 1) $R-\overset{O}{\parallel}C-Cl$
- 2) $RCONHCH_3$
- 3) $RCONH_2$
- 4) $RCOOR$

51. Glucose contains in addition to aldehyde group

- 1) one secondary *OH* and four primary *OH* groups
- 2) one primary *OH* and four secondary *OH* groups
- 3) two primary *OH* and three secondary *OH* groups
- 4) three primary *OH* and two secondary *OH* groups

52. A distinctive and characteristic functional group of fats is

- 1) a peptide group
- 2) an ester group
- 3) an alcoholic group
- 4) a ketonic group

53. At pH = 4 glycine exists as

- 1) $H_3N^+ - CH_2 - COO^-$
- 2) $H_3N^+ - CH_2 - COOH$
- 3) $H_2N - CH_2 - COOH$
- 4) $H_2N - CH_2 - COO^-$

54. Insulin regulates the metabolism of

- 1) minerals
- 2) amino acids
- 3) glucose
- 4) vitamins

55. The formula mass of Mohr's salt is 392. The iron present in it is oxidised by $KMnO_4$ in acid medium. The equivalent mass of Mohr's salt is

- 1) 392
- 2) 31.6
- 3) 278
- 4) 156

56. The brown ring test for nitrates depends on
- 1) the reduction of nitrate to nitric oxide
 - 2) oxidation of nitric oxide to nitrogen dioxide
 - 3) reduction of ferrous sulphate to iron
 - 4) oxidising action of sulphuric acid
57. Acrolein test is positive for
- 1) polysaccharides
 - 2) proteins
 - 3) oils and fats
 - 4) reducing sugars
58. An organic compound which produces a bluish green coloured flame on heating in presence of copper is
- 1) chlorobenzene
 - 2) benzaldehyde
 - 3) aniline
 - 4) benzoic acid
59. For a reaction $A + B \rightarrow C + D$ if the concentration of A is doubled without altering the concentration of B , the rate gets doubled. If the concentration of B is increased by nine times without altering the concentration of A , the rate gets tripled. The order of the reaction is
- 1) 2
 - 2) 1
 - 3) $\frac{3}{2}$
 - 4) $\frac{4}{3}$
60. Which of the following solutions will exhibit highest boiling point ?
- 1) 0.01 M $Na_2SO_4(aq)$
 - 2) 0.01 M $KNO_3(aq)$
 - 3) 0.015 M urea_(aq)
 - 4) 0.015 M glucose_(aq)